Determination of the Interval of Positive Values of the Real Part of the Frequency Characteristic Using a Graphical Representation of the Transient Response Function

78173
SOV/103-21-3-13/21

The curve $R(\omega)$ representing Eq. (3) passes through zero for the first time when $\cos t_2 \omega / t_2 \omega = 0$, i.e., when $t_2 \omega = \pi/2$. At $t_2 = t_c$, Eq. (1) for the border frequency is obtained. It is stated that the above method is applicable only to systems with small oscillation index M = 1.1 to 1.4. Otherwise, the method should be used only for approximate evaluation of ω_p. There are 2 figures; and 2 Soviet references.

SUBMITTED: April 2, 1959

Card 5/5

32970
S/146/61/004/006/010/020
D201/D301

9,7200

AUTHOR: Shiniberov, L. P.

TITLE: Four-quadrant multiplier with inductive input

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 4, no. 6, 1961, 72-77

TEXT: The author describes the principles of operation of an inductive contactless input arrangement to a multiplier, by means of which it is possible to multiply voltages belonging to all four quadrants of the coordinate system; such multiplication is not possible with normal multiplying arrangements utilizing the square-law characteristic of some non-linear element. If the voltages U_1 and U_2 to be multiplied by each other are d.c. or varying very slowly then the basic elements of the input circuit consist of two magnetic amplifiers, whose windings have equal resistances and equal numbers of turns and are connected in a bridge circuit with the same direction of magnetic flux of both windings in each ampli-

4

Four-quadrant multiplier ...

fier. The MA have two functions in the circuit: 1) They amplify the input signal and 2) make the output signal have the required sign. If U_1 and U_2 are of the same sign, the voltage U_{in1} will be proportional to the absolute value of $\left|\frac{U_1+U_2}{2}\right|$ and U_{in2} to $\left|\frac{U_1-U_2}{2}\right|$ and vice versa if the signs of U_1 and U_2 are different. In order that only positive voltages be applied to the multiplier itself, full wave bridge rectifiers are connected between the bridge arms and the corresponding multiplier unit. To avoid any possible coupling between the two rectifier circuits, the bridge circuit is formed from the control amplifier windings and that of rectifiers is connected to the working amplifier circuit. If alternating voltages are to be multiplied by each other the circuit becomes much simpler since it is then enough to use transformers instead of MA. The circuit described has been tested experimentally for multiplying by each other a.c. voltages by two identical quadratic diode multipliers with 6X6C(6Kh6S) tubes. Resistances in the diode circuits have been adjusted to within 0.5%. The input unit consisted of two trans-

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Four-quadrant multiplier ...

formers with 600 T primary-and 300 T secondary windings and transformer iron cores УШ-14 (USh-14) 1.5 cm thick. The bridge rectifying circuits had diodes ДГЦ-21 (DGTs-21). The rectified voltages were smoothed by 0.1 μF capacitors. Theoretically, the rectified output voltage U_{out} was given in terms of U_1 and U_2 as $U_{out} = \gamma U_1, U_2$, where γ was determined experimentally and found to be 0.182. The frequency of U_1 and U_2 was 400 c/s and it was found that in all quadrants the product was linear, with deviations from the theoretical straight line not exceeding 2 - 3%. It is stated in conclusion that the four-quadrant multiplication devices having an inductive input unit may be made even more accurate and find many applications in analogue computer techniques. This article was recommended by the Institute. There are 6 figures and 3 Soviet-bloc references.

ASSOCIATION: Leningradskiy ordena krasnogo znameni mekhanicheskiy institut (Leningrad Order of the Red Banner Institute of Mechanics)

SUBMITTED: May 27, 1961

Card 3/3

SHINIBEROV, L.P.

Four-quadrant multiplier with an induction input unit. Izv.vys.ucheb.zav.; prib. 4 no.6:72-77 '61. (MIRA 14:12)

1. Leningradskiy ordena Krasnogo Znameni mekhanicheskiy institut.

(Electronic analog computers)

39229
S/105/62/000/007/004/004
E200/E135

26.2351
9.7200

AUTHORS: Chernenko, M.I., Candidate of Technical Sciences, Docent; and Shiniberov, L.P., Candidate of Technical Sciences, Docent.

TITLE: Function generators based on double-feed rotating transformers

PERIODICAL: Elektrichestvo, no.7, 1962, 66-70

TEXT: Analogue computer function blocks are proposed for carrying out the operations:

$z = x^2$; $z = \sqrt{x}$; $z = k/x$; $z = xy$; $z = x/y$.

The AC circuits proposed, in contrast to units now in use, do not require amplifiers or servomotors for their operation. The characteristic feature of the circuits used is the fact that: a) the stator windings of the rotating transformers are connected in a bridge circuit; b) the machines are fed with current from both the stator and rotor side simultaneously. Fig.1 shows a squaring circuit based on rotating transformers; Fig.2 shows a

Card 1/ 0 7

Function generators based on ...

multiplier-divider unit based on rotating transformers. Here U_1 is the exciting voltage fed from the power grid to the stators; U_3 is the input voltage fed to the rotors; U_2 is the output voltage of the squaring circuit; U_1' is again an exciting voltage from the power grid; U_2' is equal to $U_1 \cdot U_2$ (when multiplying U_1 is no longer a constant exciting voltage but one of the multiplication factors). The principles of double-feed operation of rotating transformers are analysed. At the present stage of development the deviation of experimental from theoretical data does not exceed 1 - 2%. Experiments indicate that it is always possible to select exciting voltages and ranges of variation of the input quantities in such a way that the desired functional relationships are observed with good accuracy. These functional units are convenient for long-term operation and their working ranges may be extended beyond the present 15 - 60 V. Further work along these lines should lead to an increase in the precision of such functional units. The functional generators, consisting of two or four standard elements (rotating transformers) each, may find a wide application in analogue computers and

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39021

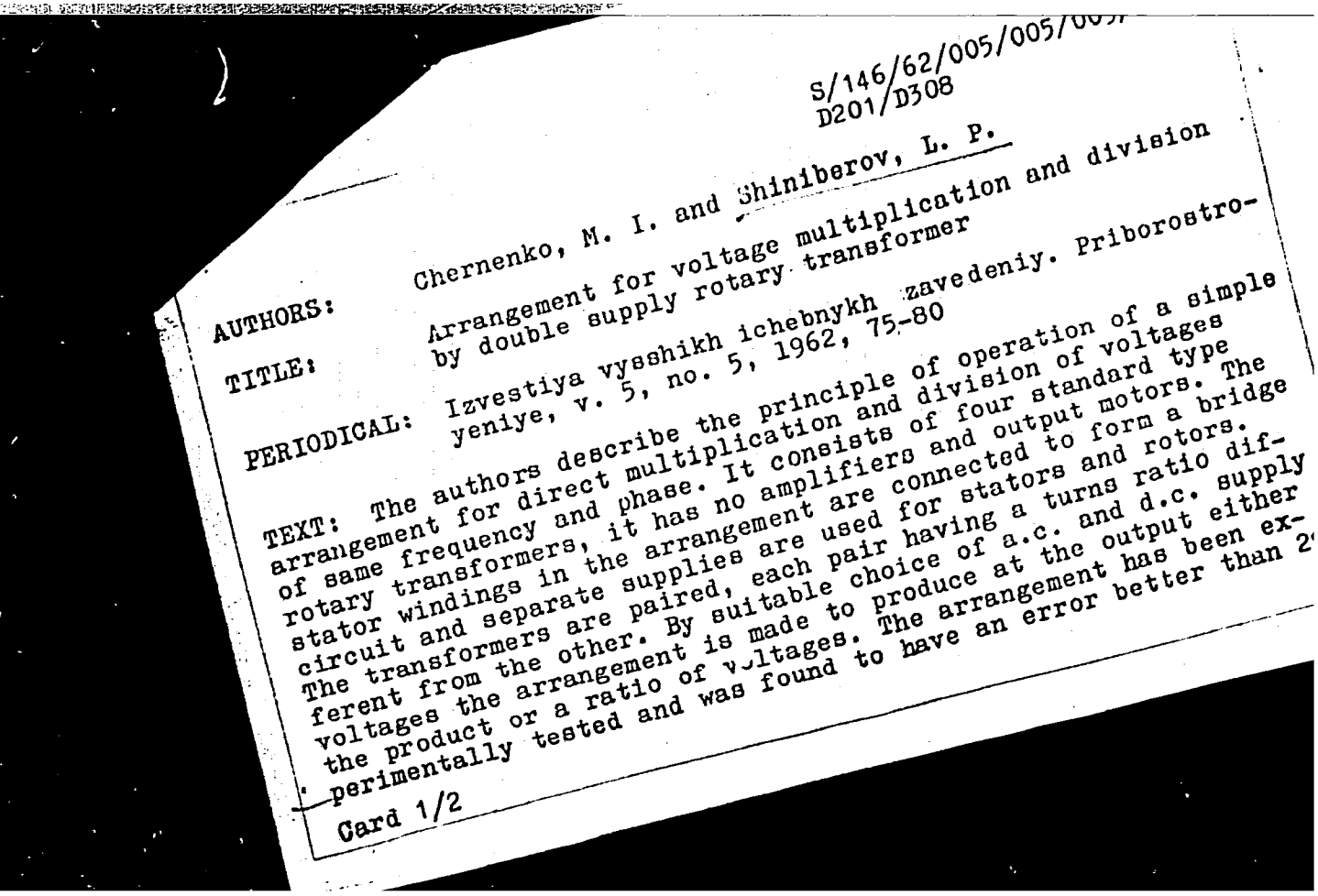
Function generators ...sed on ... S/105/62/000/007/004/004
E200/E135

AC servo-systems, since they do not require modulators, demodulators, amplifiers and servomotors.
There are 8 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut im. V.I. Ul'yanova (Lenina)
(Leningrad Electrotechnical Institute imeni V.I. Ul'yanov (Lenin)

SUBMITTED: October 7, 1961

Card 3/13



S/146/62/005/005/00[illegible]
D201/D308

AUTHORS: Chernenko, M. I. and Shiniberov, L. P.

TITLE: Arrangement for voltage multiplication and division by double supply rotary transformer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 5, no. 5, 1962, 75-80

TEXT: The authors describe the principle of operation of a simple arrangement for direct multiplication and division of voltages of same frequency and phase. It consists of four standard type rotary transformers, it has no amplifiers and output motors. The stator windings in the arrangement are connected to form a bridge circuit and separate supplies are used for stators and rotors. The transformers are paired, each pair having a turns ratio different from the other. By suitable choice of a.c. and d.c. supply voltages the arrangement is made to produce at the output either the product or a ratio of voltages. The arrangement has been experimentally tested and was found to have an error better than 2

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S/146/62/005/005/009/016
D201/D308

Arrangement for voltage ...

within the voltages range from 15 to 55 V and operated continuously for 10 to 12 hours has shown no heating effects in trandformers. There are 5 figures.

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut imeni V. I. Ul'yanova (Lenina) (Leningrad Electrical Engineering Institute im. V. I. Ul'yanov (Lenin))

SUBMITTED: March 6, 1962

)

Card 2/2

ACCESSION NR: AR4035567 S/0271/64/000/003/B018/B018

SOURCE: Ref. zh. Avtomat., telemekh. i vy*chisl. tekhn. Av. t., Abs. 3B88

AUTHOR: Shiniberov, L. P.

TITLE: Dynamic errors of the rotatable-transformer vector plotter

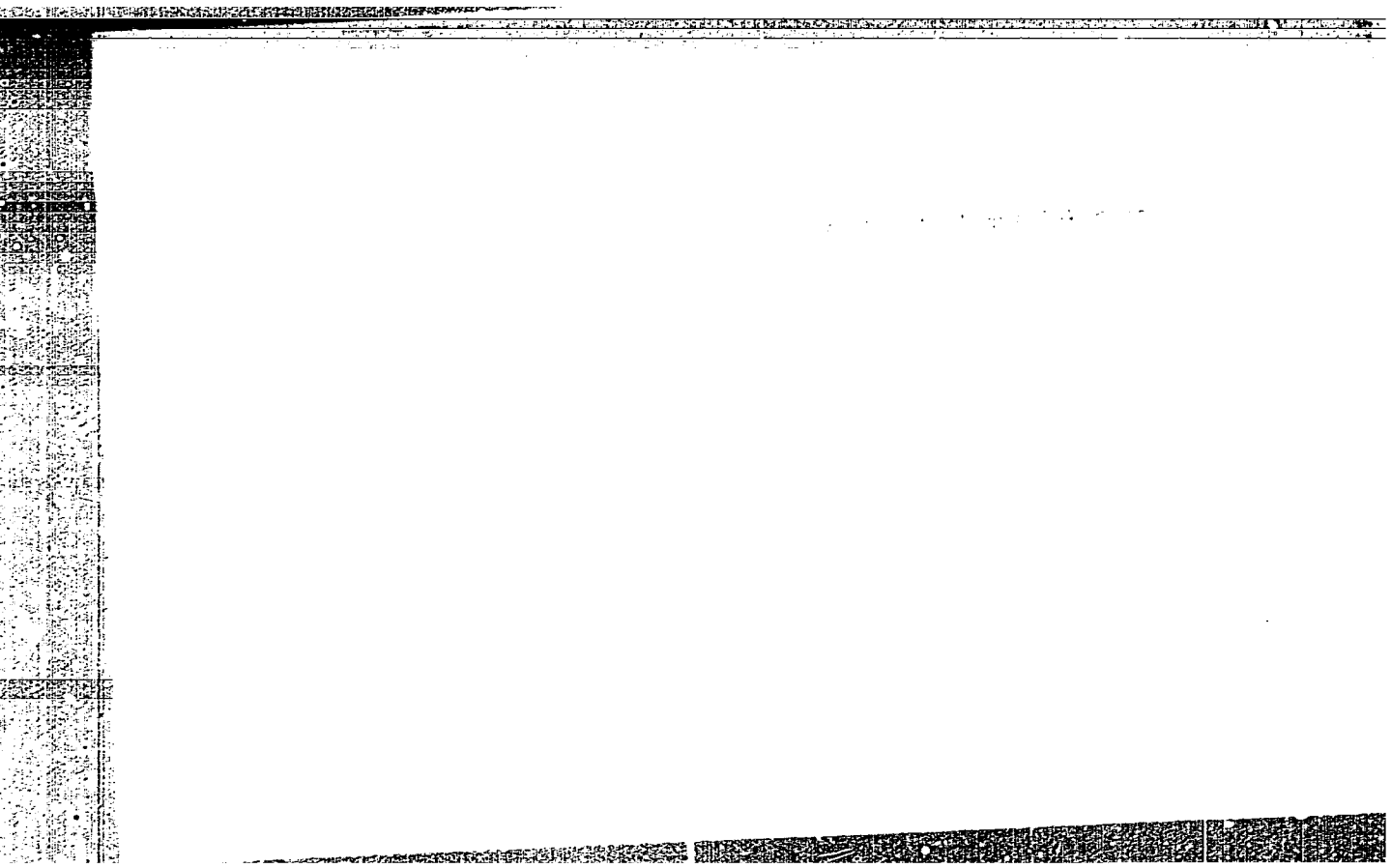
CITED SOURCE: Sb. tr. Leningr. mekhan. in-ta, no. 29, 1963, 75-82

TOPIC TAGS: vector plotter, rotatable transformer, sine cosine rotatable transformer

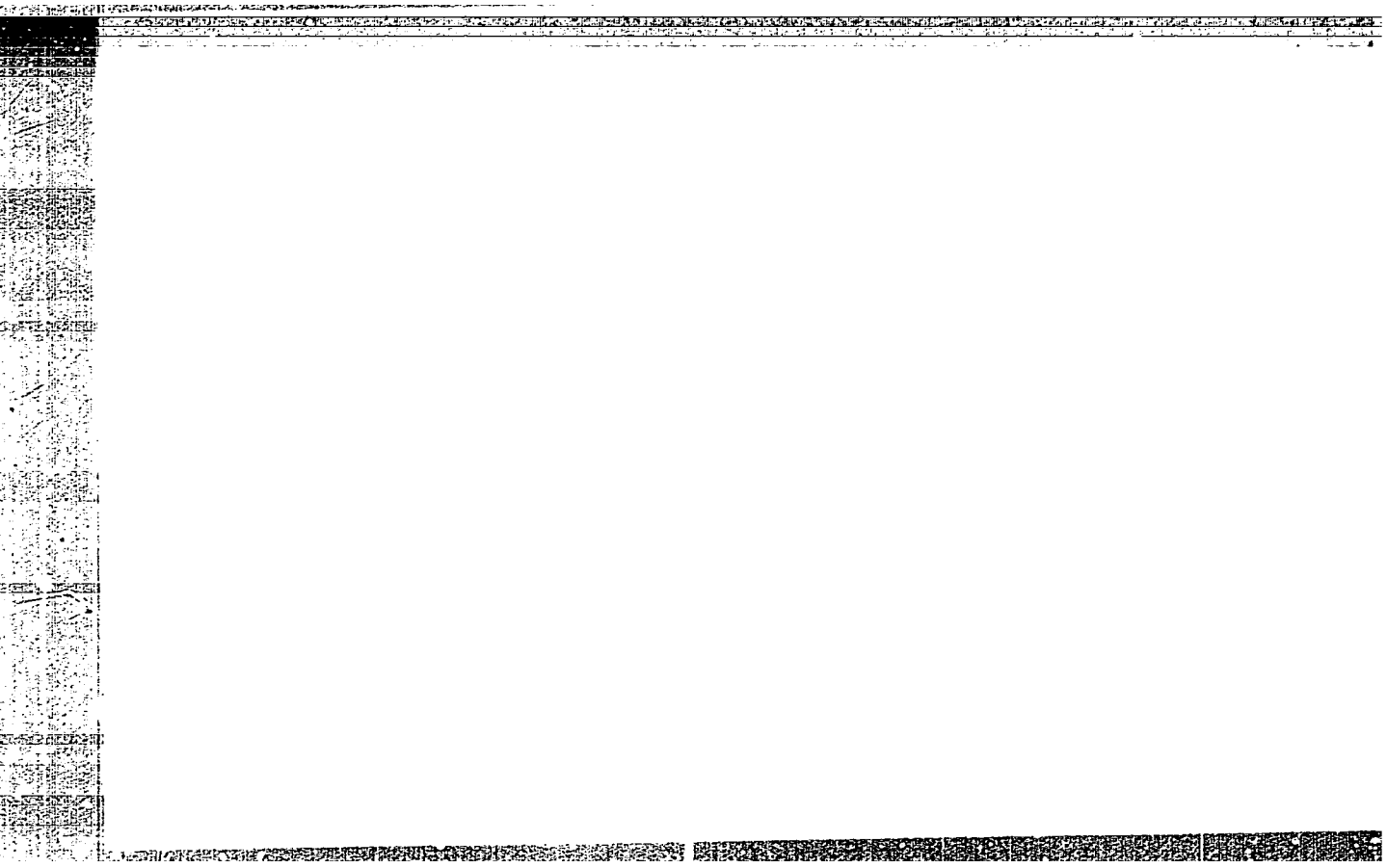
TRANSLATION: Dynamic errors are determined for a circuit with independent formation of the argument; a linear and a sine-cosine rotatable transformers are used to form the modulus and the argument of a vector from its specified projections on the coordinate axes. It is proven that the dynamic error in both the argument and the modulus depends on the initial angular difference, while the stability of the argument formation system depends on the absolute value of the modulus. It is noted that the results can be extended over the circuits using sine-cosine and linear potentiometers instead of the rotatable transformers. Three illustrations. Bibliography: 2 titles.

DATE ACQ: 17Apr64 SUB CODE: MA ENCL: 00

Card 1/1



APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549510018-7"



APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549510018-7"

KUSHNIR, F.V., ovt.red.; GAVRILOV, A.F., zaslushennyy deyatel' nauki i tekhniki, prof., red.; DOLUKHANOV, M.P., prof., red.; YEGOROV, K.P., dots., red.; ZHDANOV, I.M., prof., red.; ZELYAKH, E.V., prof., red.; ZELIGER, N.B., prof., red.; LEBEDEV, K.N., dots., red.; ODNOL'KO, V.V., dots., red.; ROMANOVSKIY, V.B. [deceased], dots., red.; FOMICHEV, I.N., dots., red.; SHINIBEROV, P.Ya., dots., red.; SHMAKOV, P.V., zaslushennyy deyatel' nauki i tekhniki prof., red.; GAL'CHINSKAYA, V.V., tekhn.red.

[Structure and reactivity of organic compounds] Voprosy stroeniia i reaktsionnoi sposobnosti organicheskikh soedinenii. Leningrad, 1959. 372 p. (Leningrad. Elektrotekhnicheskii institut sviazi. Trudy, no.8). (MIRA 13:11)
(Chemistry, Organic) (Chemical structure)

PA 47/49T26

SHINIBEROV, P. YA.

Jan 49

USSR/Communications
Cables, Coaxial
Conductors

"Concentric Cables and Their Construction,"
P. Ya. Shiniberov, 5 pp

"Priroda" No 1

Determines optimum ratio of the outside diameter of the internal conductor to the inside diameter of the external conductor to insure low losses under varying conditions for coaxial cables.

47/49T26

ZONN, M.G.; CHERENOV, A.M.; SHINIBEROV, P.Ya., otv. red.; GAL'CHIN-SKAYA, V.V., tekhn. red.

[Instructions for laboratory work in the field of overhead communication lines] Rukovodstvo k laboratornym rabotam po vozdushnym liniiam sviazi. Leningrad, Elektrotekhn. in-t sviazi. Part 1. [Testing the engineering properties of line wire and insulators and methods for splicing wires and fastening lines to poles] Ispytanie tekhnicheskikh svoistv lineinoi provoloki i izoliatorov, sposoby soedineniia kontsov provodov, ukreplenie provodov na oporakh. Pod red. P.IA.Shiniberova. 1959. 29 p. (MIRA 14:5)

(Electric lines--Overhead)

SHINIKEROV, Pavel Yakovlevich; KURBATOV, Nikolay Dmitriyevich; SERGEYEVA, Klavdiya Kirillovna; GUMELYA, A.N., otv. red.; VOLODARSKAYA, V.Ye., red.; MARKOCH, K.G., tekhn. red.

[Communication lines] Linii sviazi. Moskva, Sviaz'izdat, 1962. 431 p. (MIRA 15:7)
(Electric lines--Overhead) (Telephone lines)

SOV/66-59-3-7/31

14(1)

AUTHORS: Rogachev, N. and Shinka, V., Engineers

TITLE: Stepless Operational Production Control of Refrigeration Installations

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 3, pp 30 - 33 (USSR)

ABSTRACT: A throttle device mounted on the suction line of a compressor is proposed as a means of obtaining smooth continuous control of the operation of a compressor in accordance with temperature changes of the medium under refrigeration. The article describes the design of an automatic throttle (ADT) consisting of two parts - a transducer and a servo mechanism. Pressure under the membrane of the transducer being constant, the position of the membrane and of the actuating valve depends entirely on the pressure of the substance above the membrane, or the temperature of the refrigerated medium, in which the thermo-cartridge of the transducer is placed. Control devices of the type ADT permit the improvement of temperature regulation in a number of cases. However, energy losses, observed in connection with this method of temperature control, limit its field of application. The author recommends the controller of the ADT type for: 1) multi-temperature systems, in which evaporators possessing different temperatures are operated by a single compressor; 2) for controlling the

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Stepless Operational Production Control of Refrigeration Installations

temperature at the outlet of the evaporator in order to prevent freezing of products or of the cooling agent (brine, water); 3) for raising the evaporating temperature in cold chamber installations during periods of partia load in order to prevent shrinkage of products from drying; 4) for air conditioners and other installations intended for objects with small heat capacities and varying load.
There are 2 diagrams, 2 graphs and 1 English reference.

ASSOCIATION: SKB kislorodno-dykhatel'noy apparatury (Special Designing Bureau for Oxygen Breathing Apparatus) (N. Rogachev); TsKB kholodil'nogo mashinostroyeniya (Central Designing Bureau of Refrigeration Machine Building) (V. Shinka).

MINEYEV, P.A., inzh.; GUREVICH, Ye.S., inzh.; SHINKA, V.Ya., inzh.; BUKHTER, Ye.Z., inzh.; SHCHERBAKOV, V.S., inzh.; IL'INA, N.I., inzh.; GLUKHOV, V.V., inzh.; GOGOLINA, T.V., inzh.; KROTKOV, V.N., inzh.; STASHIN, Ye.A., inzh.; KUSHNER, A.P., inzh.; YERMAKOVA, P.I., inzh.; PAVLOV, R.V., inzh., red.; KASPEROVICH, N.S., red.izd-va; UVAROVA, A., tekhn. red.

[Catalog of refrigeration equipment] Katalog kholodil'nogo oborudovaniia. Moskva, Mashgiz, 1963. 186 p. (MIRA 16:7)

1. Russia (1923- U.S.S.R.) TSentral'noye konstruktorskoye byuro kholodil'nogo mashinostroyeniya.2. TSentral'noye konstruktorskoye byuro kholodil'nogo mashinostroyeniya (for all except Kasperovich, Uvarova).
(Refrigeration and refrigerating machinery--Catalogs)

SHINKA, YA. K

PHASE I BOOK EXPLOITATION SOV/4795

Akademiya nauk Latviyskoy SSR. Institut energetiki i elektrotekhniki

Sistemy elektrosnabzheniya transportnykh sredstv, 3 (Electrical Supply Systems for Means of Transportation, 3) Riga, 1960. 224 p. (Series: Its: Trudy, 9) Errata slip inserted. 1,000 copies printed.

Editorial Board: E.Ya. Yakubaytis (Resp. Ed.) Candidate of Technical Sciences; V.V. Apsit, Candidate of Technical Sciences; A.F. Krogeris, Candidate of Technical Sciences; Ed.: Ye. Savel'yeva; Tech; Ed.: Ya.Paeglis.

PURPOSE: This collection of articles is intended for technical personnel concerned with electrical supply systems for means of transportation.

COVERAGE: This collection is the third in a series of works of the Institute of Power and Electrical Engineering, Academy of Sciences Latviyskaya SSR, which deal with problems connected with the electrical supply systems for transportation. Many of the articles deal with electric generators of electric power-supply systems for railroad passenger cars, with emphasis placed on the design of a

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synchronous generator with a built-in power rectifier. Other articles are concerned with the analog simulation of magnetic amplifiers, the investigation of transient processes in automatic regulation circuits, and the application of saturable reactors in transformer substations. References accompany most of the articles.

TABLE OF CONTENTS:

29905
S/584/61/000/011/002/008
E194/E455

9,4340 (1143, 1150, 1160)

AUTHORS: Puritis, T.Ya. and Shinka, Ya.K.

TITLE: The inverse-voltage of germanium rectifier elements

SOURCE: Akademiya nauk Latviyskoy SSR. Institut energetiki i elektrotekhniki. Trudy. no.11. Riga, 1961. Poluprovodniki i ikh primeneniye v elektrotekhnike. no.1. 17-40

TEXT: It is often necessary to work germanium rectifiers as near the limit as possible and for this purpose it is useful to know by how much the inverse-voltage can be raised if the rectifiers are operating below rated current. Published data are not conclusive on this point and accordingly the present article gives experimental relationships between the breakdown voltage and temperature. It also indicates the permissible inverse-voltages on germanium rectifier elements type ВГ-10 (VG-10) under conditions that are frequently met in practice. The theory of breakdown of a solid dielectric is first discussed. When an electric field is applied to a dielectric, the energy levels and zones become sloping, whilst electrons move horizontally in the conductivity zone and so pass from one energy level to another.

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The inverse-voltage of ...

The form of breakdown when a sufficiently high electric field strength is applied depends upon various conditions. It may result from thermal ionization at high temperatures, impact ionization, or electrostatic ionization - the Zener effect. If, in a semiconductor, an inverse-voltage is applied to the junction, the concentration of free carriers is small and the properties of the p-n junction are analogous to those of a dielectric. Accordingly, the following main types of breakdown are possible in p-n junctions of germanium rectifier elements (1) thermal breakdown caused by thermal ionization or (2) electrical breakdown caused by (a) electrostatic ionization or (b) impact ionization. Application of an inverse-voltage causes current to flow, which heats the semiconductor. Thermal breakdown is characterized by decrease in the breakdown voltage and can be caused by excess temperature, impairment of heat transfer or prolonged application of voltage. Electrical breakdown is observed in all germanium rectifiers, but only under conditions that preclude thermal breakdown, i.e. at low temperatures, with good heat transfer and electrical impulses of short duration and low recurrence frequency. Zener breakdown in ordinary germanium

The inverse-voltage of ...

diodes is improbable in practice, but it can occur at low values of inverse-voltage when using low-resistance germanium. In most cases, the electrical breakdown of p-n junctions in germanium is caused by impact ionization. The ionization coefficients of electrons and of holes are criterial magnitudes of impact ionization. They are expressed by the number of electron-hole pairs formed by a single electron (or hole) on one cm of path in the direction of the electric field. Avalanche breakdown occurs if either of these coefficients tends to infinity. The value of the breakdown voltage under impact ionization depends on the specific resistivity of the material, though different expressions have been given for the relationship between the two values. Let β denote the thermal coefficient of breakdown under impact ionization, referred to a temperature of 293°K. For germanium it is recommended to use the value

$$\beta = 1.2 \times 10^{-3} \ 1/°C$$

In practice, germanium diodes usually operate with temperature differences not greater than 20 to 30°C, within which range the

change in breakdown voltage does not exceed 3 to 4%. Soviet germanium rectifiers are made of single crystal germanium with a specific resistance of 14 to 20 ohm/cm. Accordingly, Zener breakdown cannot occur in the junctions of germanium diodes and on theoretical grounds the breakdown voltage for impact ionization should range between 417 and 600 V. However, actual samples have much lower breakdown voltages than this and also a fairly marked reduction in permissible inverse-voltage with increase of temperature. Thus, according to certain published results, the breakdown voltage is reduced by 5 V on increasing the temperature by 1°C; and according to other published data, germanium elements type VG-10 with an inverse-voltage of 50 to 100 V had an electric strength greater than 360 V at 25°C but only 160 V at 75°C. This indicates that under normal operating conditions, the permissible inverse-voltage is limited mainly by thermal or thermo-electric breakdown. This is confirmed by test results of breakdown as a function of temperature. Accordingly, to elucidate the main forms of breakdown and to determine the temperature relationship of the breakdown voltage in actual rectifier elements, an experimental study was made of the change in the permissible inverse-voltage of

The inverse-voltage of ...

rectifier elements type VG-10 manufactured by the Elektrovypryamitel' Works. The tests were made in a thermostat and the samples were fixed to a copper-plate of high thermal capacity, so that the body of the rectifier element was maintained at a steady temperature within ± 0.5°C. The inverse-voltage was applied in the form of half-wave sinusoidal impulses at a frequency of 50 c/s, and the breakdown current was limited by a series resistance of the order of 6 to 7 kilohms. The inverse-current passing through the element during the test caused additional heating of the junction, so that during the test its temperature pulsated at the frequency of the applied inverse-voltage. Thus, throughout the test, the temperature of the junction was above that of the body of the rectifier. To obtain comparable values of breakdown voltage as a function of temperature, it is necessary to know the temperature of the junction. However, as this temperature is difficult to determine during the application of a sinusoidal half-wave inverse-voltage, the experimental conditions were so selected as to maintain constant the maximum temperature difference between the junction and the body of the rectifier. Theoretical considerations show that if the value of the maximum power of an impulse is

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The inverse-voltage of ...

maintained constant the temperature difference of the junction will also remain constant. In practice, most elements type VG-10 operate stably if the maximum power in the inverse direction does not exceed 10 W, and this value was taken as a criterion for obtaining the relationship between the permissible inverse-voltage and temperature. For samples in which thermal breakdown occurred at a lower power level, a record was kept of the voltage at which thermal breakdown was revealed by the oscillograph. The tests were made over the ambient temperature range of 15 to 60°C using germanium rectifier elements of the following types, ВГ-10-30 (VG-10-30), ВГ-10-45 (VG-10-45), ВГ-10-55 (VG-10-55), ВГ-10-80 (VG-10-80), ВГ-10-110 (VG-10-110) manufactured by the Elektrovypryamitel' Works in 1958-1959. Excluding those with unstable characteristics, the type VG-10 rectifier elements may be classed into two groups according to whether thermal breakdown occurred with the impulse power above or below 10 W. Curves of breakdown voltage as a function of temperature for the first of these groups usually have an initial horizontal part followed by a slope. It is concluded that the horizontal part corresponds to electric breakdown of the junction and the sloping part to

The inverse-voltage of ...

thermo-electric breakdown. For elements of the second group, all the curves of breakdown voltage as functions of temperature are sloping, but certain of them show an inflection point. It is concluded that the less sloping part of the curve corresponds to thermo-electric breakdown which with increasing temperature becomes thermal breakdown where the slope of the curve changes. However, attention is drawn to the temperature coefficient of breakdown β, which is the change in breakdown voltage when the temperature is reduced by 1°C relative to the breakdown voltage at the maximum temperature of 60°C. Consideration of this coefficient shows that the above classification of the elements into two groups is in fact arbitrary and that there are elements in which breakdown occurs by combined thermal and electrical (avalanche) ionization giving thermo-electric breakdown. The actual value of β for the elements type VG-10 varies over a wide range but the following values are suggested as a result of the work. In the case of electrical breakdown, $\beta = 0$. In the case of thermo-electric breakdown, $\beta = -0.5 \times 10^{-2}$ 1/°C and in the case of thermal breakdown, $\beta = -1.1 \times 10^{-2}$ 1/°C. As the thermal coefficient of breakdown is negative, some increase in the inverse-

The inverse-voltage of ...

voltage of the rectifier element is possible if the temperature of the junction is not too high. However, to determine the possible increase of inverse-voltage, it is necessary to know either the value of β for the given rectifier element or at least to determine from its volt-ampere characteristic the type of breakdown at the working temperature and to use the mean values of the coefficient given above. The ratio of the breakdown to the rated voltage is lowest in rectifiers with high rated inverse-voltage. Thus for rectifiers type VG-10-110 with a nominal voltage of 110 V, the average value of this ratio is 2.4 and the least value found was 1,8 . whilst for elements VG-10-30 with a rated voltage of 30 V the corresponding values are 4.7 and 3.2 . Thus, elements type VG-10 of low rated voltage have much more voltage reserve than those of high rated voltage. There are 12 figures and 22 references: 11 Soviet and 11 non-Soviet. The four most recent references to English language publications read as follows
Ref.10: J.I.Missen. IEE Proceedings, v.106, part C.1959, no.9, 3-11
Ref.11: A.W.Matz. IEE Proceedings, v.104, part B. 1957. no.18
555-564; Ref.18: D.R.Muss, R.F.Greene. J. Appl. Phys., v.29

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29905
S/584/61/000/011/002/008
E194/E455

The inverse-voltage of ...

1958, no.11, 1534-1537; Ref.22P Semiconductor rectifiers
Electr. Rev., v.161, 1957, no.14, 587-592.

X

Card 9/9

S/194/62/000/005/065/157
D295/D308

9.4340

AUTHORS: Puritis, T.Ya., and Shinka, Ya.K.

TITLE: Inverse voltage of germanium rectifier elements

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-4-23 shch (Trudy In-ta energ. i elektro-tekhn. AN LatvSSR. 11, 1961, 17-40)

TEXT: The physical processes causing break-down of germanium rectifiers are investigated in detail. It is observed that under normal operating conditions the breakdown voltage is determined in most cases by thermal or thermoelectric breakdown (thermal and impact ionization). The measurement method is described in detail and results are shown of a large number of measurements of the breakdown voltage of a ВГ-10 (VG-10) type rectifier at various temperatures. The breakdown voltage was determined as the voltage at which the maximum power during the passage of inverse current in the rectifier reached 10 W. Mean values of the temperature coefficient of the breakdown voltage were obtained: Electrical breakdown 0, thermoelectric breakdown 0.5×10^{-2}, thermal breakdown 1.1×10^{-2} /°C. The

Card 1/2

Inverse voltage of germanium ... S/194/62/000/005/065/157
D295/D308

type of breakdown was determined according to the character of the temperature dependence of the breakdown voltage. 22 references. [Abstractor's note: Complete translation].

Card 2/2

29906
S/584/61/000/011/003/008
E194/E455

9.2150 (1159.1482)

AUTHORS: Rutman[illegible], D.A. and Shinka, Ya.K.

TITLE: Permissible values of direct current in germanium rectifier elements

SOURCE: Akademiya nauk Latviyskoy SSR. Institut energetiki i elektrotekhniki. Trudy. no.11. Riga, 1961. Poluprovodniki i ikh primeneniye v elektrotekhnike. no.1. 41-54

TEXT: The maximum permissible values of the forward current and the inverse-voltage are the most important characteristics of rectifiers. As rectifiers are often required to operate under service conditions different from those to which the nominal rating applies, it is of interest to know how the permissible values of current and voltage alter when the conditions change. This article is concerned with possible changes in the rated current under different conditions of cooling. The work was done on germanium rectifier elements type GT-10 (VG-10) manufactured by the Elektrovypryamitel' Works in 1958-1959 in the laboratories of the Institut energetiki i elektrotekhniki AN Latviyskoy SSR

Card 1/[illegible]

Permissible values of direct ...

(Institute of Power and Electrical Engineering AS Latvian SSR)
The principal factor that limits the current density in the forward direction is heating of the junction, which in a germanium rectifier should not rise above a temperature of 60°C. Experimental work has shown that even within this limitation, it is possible to operate at current densities of 330 A/cm^2 but, in practice, difficulties of ensuring adequate heat-transfer limit the current density in currently manufactured germanium rectifiers to 50 A/cm^2. Evidently, this value could be increased and accordingly, it is necessary to know the relationship between the permissible forward current density and the intensity of heat transfer. Although theoretical expressions are given for the forward current, the inverse-voltage and the total losses in a rectifier element it is pointed out that the losses are most accurately determined by graphical integration of experimental voltage and current curves. The principal way of increasing rectifier rating is to improve the thermal conductivity of the elements, and for this a detailed investigation of the temperature distribution within the rectifier elements is required Part of the resistance to heat transfer is termed the internal

Card 2/[redacted] 7

Permissible values of direct ...

resistance of the element and includes the thermal resistance from the junction to the base of the rectifier element frame. The external resistance is that from the frame to the cooling medium. The internal resistance depends on the construction of the actual element and the method of manufacture. It can, in principle, be sub-divided into a number of temperature drops across the various parts of the device. The construction of a prototype cooler for germanium rectifier elements type VG-10 will be seen from Fig.4. The cooler was made of sheet aluminium 2.5 mm thick and had eight fins, each 45 mm long and 80 mm wide, the total cooling surface being 800 cm^2 and the weight 280 g. The rectifier and cooler, fitted with thermo-couples, was placed in a wind tunnel in which the speed could range from 0.4 to 30 m/sec. The unit was heated by the application of direct current passing in the forward direction until a steady temperature had been reached, when the appropriate measurements were made. The location of the thermo-couples is shown by the numbers in Fig.4, namely 1 - contact bolt; 2 - connection between flexible wire and contact bolt; 3 - flexible wire; 4 - indium; 5 - germanium; 6 - frame of rectifier element; 7 - base of cooler rib; 8 - tip of cooler rib.

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Permissible values of direct ...

The curves of Fig.4 show the temperature rise of a rectifier element type VG-10 relative to the surrounding air, the solid lines corresponding to a current of 64 A and the dotted lines to a current of 35.6 A; in each case the upper line corresponds to an air speed of 2.5 m/sec and the lower to an air speed of 30 m/sec. As the temperature is lower on the germanium side of the junction, it follows that most of the heat evolved at the junction passes towards the copper base. The linear temperature drop along the flexible wire indicates that the heating effect of the current in this wire does not cause additional heating of the junction. When the air speed is increased from 2.5 to 30 m/sec, with constant power loss, the internal temperature drop in the rectifier is practically unaltered. Hence, the internal resistance to heat transfer does not depend on the rate of external heat removal and can be assumed constant at 0.9°C/W under normal operating conditions. However, as the air speed rises there is a three-fold reduction in the temperature drop from the frame to the surrounding air, which means a great decrease in external resistance. It was found that increasing the air speed above 8 m/sec gives very small reduction of the total temperature drop,

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because even at this speed the cooler is not fully exploited, having a temperature drop of only 6 to 2° at the base. Fig.5 shows experimental curves of the maximum recorded temperature rise for various rates of air flow. The dotted curves correspond to standard rectifiers without cooling fins and the considerable reduction in resistance to heat transfer that results from their use will be noticed. The results of Fig.5 also confirm that little is gained by increasing the airspeed above 8 m/sec.
The theoretical considerations given in the earlier part of the article lead to the following expression for the mean value of the forward current:

$$I_{cp} = -\frac{U_o}{2rk_f^2} + \sqrt{\frac{U_o}{4r^2k_f^4} + m(\vartheta_1 - \vartheta_2)} \qquad (10)$$

where U_o - the voltage on the junction; r - the ohmic resistance of the semiconductor and contact electrodes, ohms; k_f - the ratio of the effective value of the rectified current to the mean value of the rectified current; ϑ_1 - the temperature of

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the junction, °C; ϑ_2 - the ambient temperature °C;

$$m = \frac{\alpha F}{k_f 2r} = \frac{1}{sk_f r}$$

where α is the total heat-transfer coefficient, W/cm^2 °C, F - the cooling surface in cm^2; 1/s - the thermal conductivity. If under given cooling conditions the temperature ϑ_1 is measured for given values of I_{cp} and ϑ_2 then Eq.(10) will indicate the unknown value of m. By using volt ampere characteristic and Eq.(10), a relationship may thus be constructed between the mean value of the rectified current and the temperature drop with various conditions of cooling. Curves of this kind have been constructed and are in good agreement with the experimental results. However, it is, in practice, more convenient to plot curves of the relationship between the permissible current value and the airspeed for a given temperature drop; such curves are shown in Fig.7. From these it follows that if the maximum permissible temperature of the junction is +60°C and the air temperature is 30°C, the permissible

Permissible values of direct ...

temperature drop is 30°C. Thus, with the cooling air flow of 8 m/sec, a rectifier element VG-10 can carry a direct current of 40 A, which is about four times the normal rated value. The possibility of operating rectifier elements type VG-10 at loads of 32 to 35 A has been confirmed by life tests. There are 7 figures and 3 Soviet-bloc references.

Card 7/[redacted]

29907
S/548/61/000/011/004/008
E194/E455

9.2150 (1159, 1482)

AUTHOR: Shinka, Ya.K.

TITLE: The working region of germanium rectifier elements

SOURCE: Akademiya nauk Latviyskoy SSR. Institut energetiki i elektrotekhniki. Trudy. no.11. Riga, 1961. Poluprovodniki i ikh primeneniye v elektrotekhnike. no.1. 55-60

TEXT: It is important to be able to determine the range of operating conditions of germanium rectifiers. Both the breakdown voltage and permissible values of forward current of germanium rectifiers depend mainly on the junction temperature, which itself depends mainly on the effectiveness of heat exchange and the surrounding ambient temperature. The temperature coefficient of breakdown for a rectifier ВГ-10-110 (VG-10-110) is $\beta = -1.16\%\,^{\circ}C^{-1}$. According to manufacturers' data, the ratio of the breakdown voltage to the rated inverse-voltage is 1.83. These data may be used to construct curves such as that in Fig.2, which gives the forward current as a function of breakdown voltage for a range of ambient temperatures at an air speed of 2 m/sec. Alternatively, curves may be plotted as in Fig.3, which gives the

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The working region of ...

forward current as function of breakdown voltage for various air speeds at an ambient temperature of 35°C. Both these curves relate to a rectifier type VG-10-110 with an aluminium cooler having a total surface of 800 cm^2. From curves of this kind there can readily be plotted a three-dimensional graph of the working parameters of a germanium rectifier. For instance, Fig.4 covers the temperature range of 0 to 60°C with an air speed of 2 m/sec. In this graph the x axis gives breakdown voltage V; the y axis current A; and the z axis ambient temperatures °C. There are 4 figures and 3 references: 2 Soviet and 1 a Russian translation from non-Soviet authors.

Card 2/2

S/194/62/000/005/070/157
D295/D308

9.2150
9.5100

AUTHOR: Shinka, Ya.K.

TITLE: Coolers for germanium rectifier elements

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-4-49 yu (Trudy In-ta energ. i elektrotekhn., AN LatvSSR, 11, 1961, 95-111)

TEXT: An analysis is carried out of the thermal-exchange stationary processes of germanium rectifiers with a view to designing the construction and determining the dimensions of a cooler. ВГ-10 (VG-10) type germanium rectifiers were investigated experimentally. The thermal exchange process of the element with the surrounding medium is represented in the form of an equivalent scheme. The calculation of a cooling system is shown. Prototype cooling-system constructions for high-power semiconductor rectifiers have been designed that are characterized by simplicity of manufacture and extended cooling surface for small dimensions and weight (the total cooling surface is 800 cm^2, the weight is 280 g). 4 references. [Abstractor's note: Complete translation].

Card 1/1

9.2150 (1159,1482)
9.5100

29911
S/548/61/000/011/008/008
E194/E455

AUTHOR: Shinka, Ya.K.

TITLE: Coolers for germanium rectifier elements

SOURCE: Akademiya nauk Latviyskoy SSR. Institut energetiki i elektrotekhniki. Trudy. no.11. Riga, 1961. Poluprovodniki i ikh primeneniye v elektrotekhnike. no.1. 95-111

TEXT: Air cooling is a simple and reliable way of cooling semiconductor rectifiers. Tests have shown that when cooling fins are used, the optimum air speed is in the range 8 to 15 m/sec. At such speeds, the fins do not become dirty and the power consumption for air circulation is low. Heat dissipation from a cooled rectifier depends on the temperature differences between the various parts and their thermal resistances. An equivalent electrical circuit to represent the temperature distribution can readily be formulated. It is obviously desirable to reduce the thermal resistance as much as possible. Of the various components, the internal thermal resistance of a rectifier element is relatively constant and under normal conditions for a germanium element type ВГ-10 (VG-10) it is of the order of

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0.9°C/W. If manufacturers would indicate this value on the rating plate for each type of rectifier, the temperature of the junction could conveniently be determined from the base-plate temperature. To reduce the thermal resistance of transfer from the frame to the cooler, particular attention should be paid to ensuring good thermal contact between the rectifier frame and the base of the cooler. Published data indicates that a conical joint has considerable advantages over a threaded joint in this respect. Laboratory tests show that insertion of four or five layers of aluminium foil between the cooler and frame reduces the temperature drop by 3 to 4%. The thermal resistance between the frame and the surrounding medium can be measured experimentally. If the thermal resistance of the cooler is low, the transition resistance and the resistance between the frame and the air may be neglected or may be accounted for by some increase in the cooler resistance. This greatly simplifies the electrical analogue circuit, which is reduced to a battery with two resistances in series, one corresponding to the internal thermal resistance of the rectifier element and the other to the thermal resistance of the cooler. Expressions may be derived for the cooler surface but

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as the heat-transfer coefficient is generally rather indeterminate, it is best determined experimentally. The institut energetiki i elektrotekhniki AN Latviyskoy SSR (Institute of Power and Electrical Engineering, AS Latvian SSR) has developed a number of experimental designs of cooler for power semiconductor rectifier elements which are easy to manufacture and have a large cooling surface. The design of such a cooler for germanium rectifiers type VG-10 is shown in Fig.3 with dimensions in mm. The cooler is made of sheet aluminium, 2.5 mm thick, and has a total cooling surface of 800 cm^2 and weighs 280 grams. Laboratory tests were made to assess the heat-transfer coefficient of this design of cooler. The cooler was fixed to a rectifier supplied with direct current and the cooler characteristic was determined with various rates of flow of cooling air. The results obtained are plotted in Fig.5 which shows the relationship between the temperature rise of the frame of a rectifier element type VG-10 and the cooler as a function of the direct losses with various rates of air flow. The temperature rise is plotted on the y axis and the power loss in watts on the x axis ; the figures against the various curves correspond to air speed in m/sec. The

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external resistance of the cooler may be determined from these curves and is quite small; for example at an air speed of 0.4 m/sec, it is 1.48°C/W and at a speed of 30 m/sec, 0.26°C/W. As the internal resistance of the rectifier is about 0.9°C/W, the external resistance is only about 20% of the total thermal resistance so there is not much point in reducing it further. The Institute has developed a whole series of cooler designs of similar type, some of which are already in service. Tests have shown that although they are of similar construction, there is some scatter in the heat-transfer coefficient values, due to constructional differences. Sketches of a number of these coolers are given, together with data about the heat-transfer coefficient. The results obtained can provide a general guide in selecting the dimensions of aluminium coolers for power semiconductor rectifiers. Further investigations are required to select the optimum construction of coolers for germanium rectifiers. Undoubtedly the best results will be obtained with coolers of cast construction, particularly when the cooler forms a single unit with the rectifier frame. This is the direction that further investigations should follow. There are 12 figures and

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Coolers for germanium ...

1 table and 4 references: 3 Soviet and 1 non-Soviet. The reference to an English language publication reads as follows: Ref.2: J.G.Maloff. Electronic Industries and Tele-Techn. v.16, 1957, no.12, 54-55, 152-157.

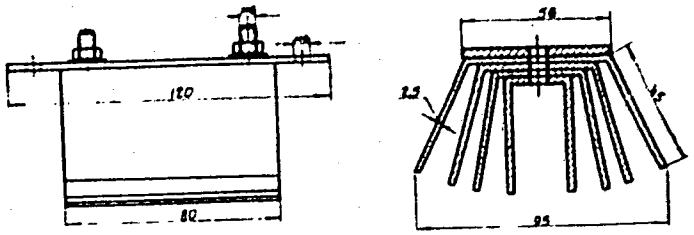

Fig.3.

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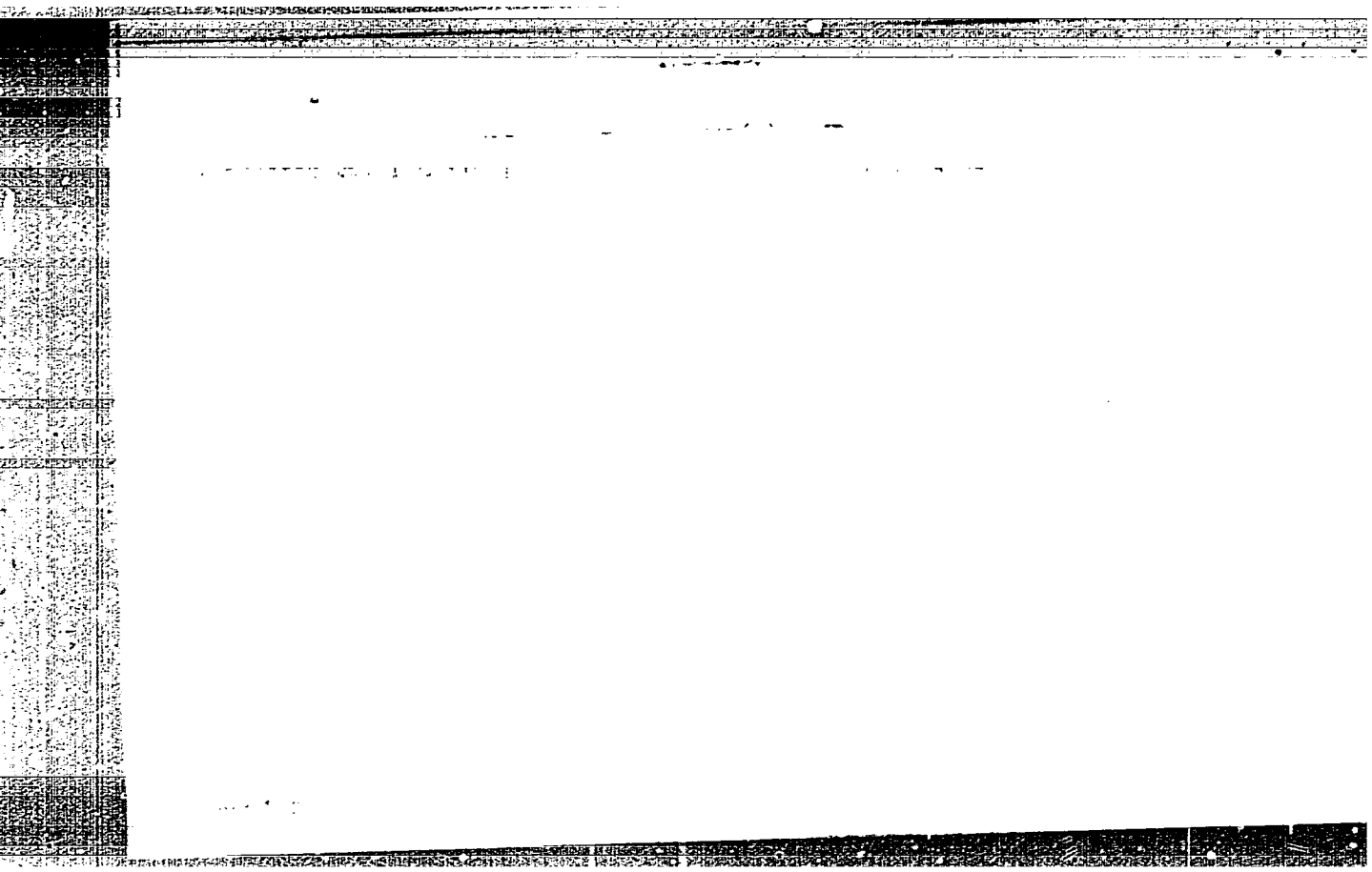
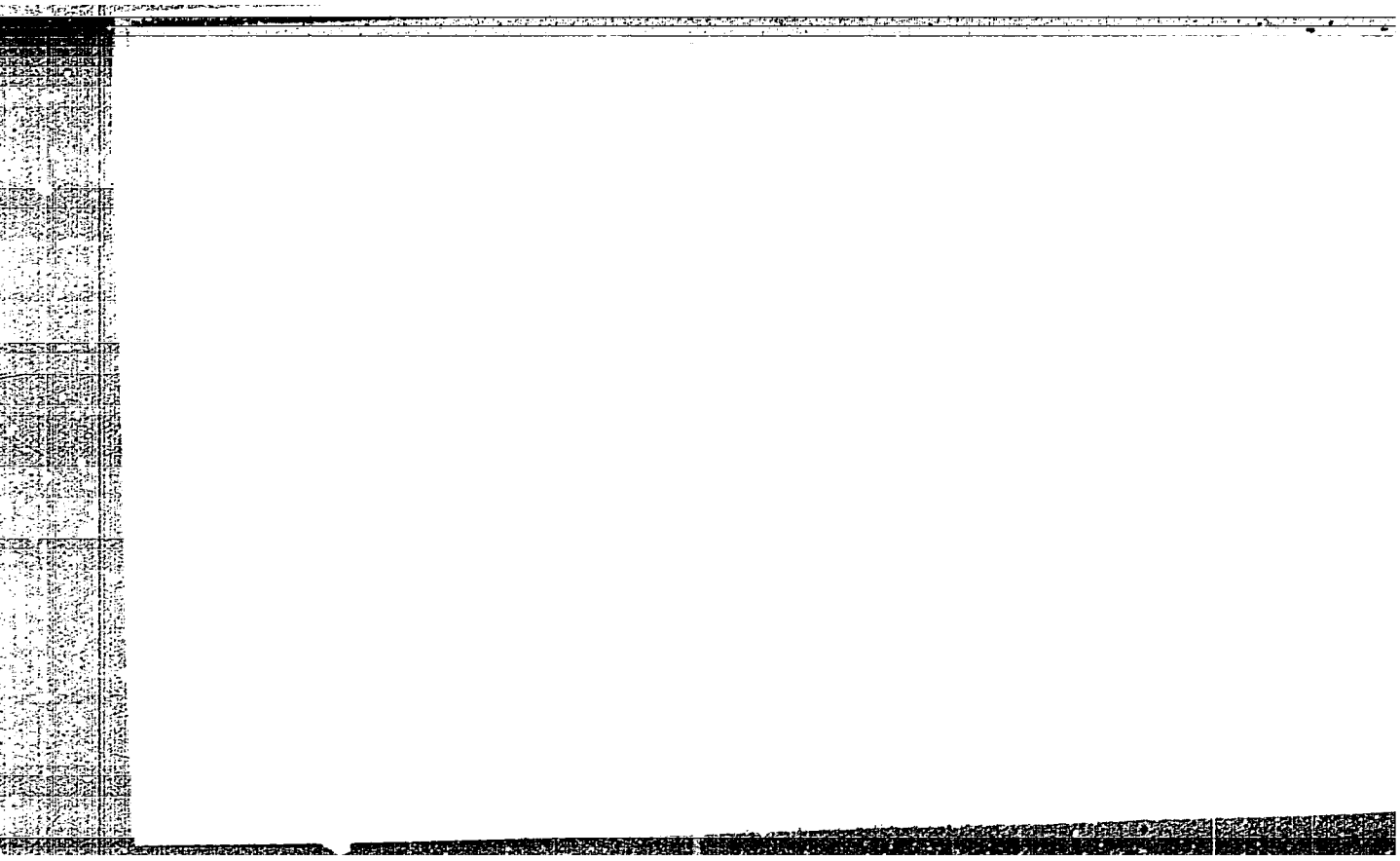
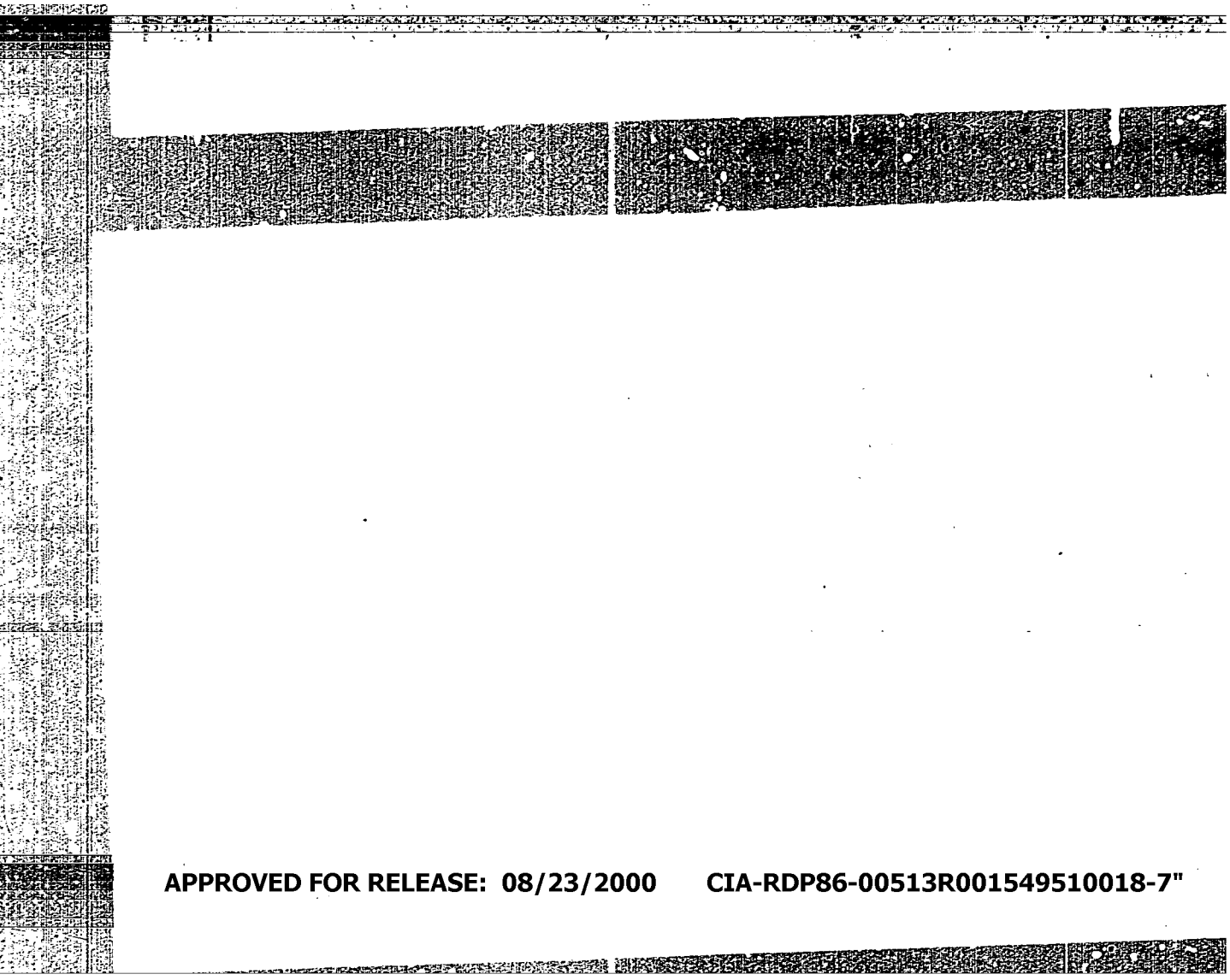




APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549510018-7"

reported. This motor actually consists of an inductor-type synchronous machine [illegible] commutator", the latter acts as an inverter whose



S/021/61/000/004/006/013
D213/D303

16.1800 16.6500

AUTHORS: Dlugach, M.Y., and Shynkar', A.F.

TITLE: Solving by means of electronic computers of symmetrical systems of linear algebraic equations of applied mechanics and the theory of elasticity

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 4, 1961, 438 - 441

TEXT: The authors remark that in accordance with the basic principles of mechanics symmetrical systems of equations arise very frequently in applied mechanics and the theory of elasticity. The existing standard programs for solving systems of linear equations by computers are designed for a more general case, where symmetry is irrelevant. Two programs for the solution of symmetrical systems are proposed. Program 1. The given system is taken to have n linear -algebraic equations, with matrix of coefficients $A = //a_{ij}//(i = 1, \ldots, n; j = 1, \ldots, n)$ and matrix of independent terms B =

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Solving by means of ...

$= //a_{ij}//$ (i = 1,2, ..., n; j = n+1, n+2, ..., n+k). C is the matrix with k columns of independent terms, formed by combing A and B. If C is transformed by equivalent transformations into

$$C^{\bullet} = \begin{Vmatrix} 1 & 0 & \dots & 0 & a^{\bullet}_{1,n+1} & \dots & a^{\bullet}_{1,n+k} \\ 0 & 1 & \dots & 0 & a^{\bullet}_{2,n+1} & \dots & a^{\bullet}_{2,n+k} \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & \dots & 1 & a^{\bullet}_{n,n+1} & \dots & a^{\bullet}_{n,n+k} \end{Vmatrix}, \qquad (1)$$

then the numbers $-a^{*}_{1,n+j}$, $-a^{*}_{2,n+j}$, ..., $-a^{*}_{n,n+j}$, are the solutions of the given system of equations for the corresponding column of independent terms. The recurrence relationships between terms occurring after the p-th and (p+1)-th transformations in that part of the matrix above the principal diagonal are given, and after n such transformations, the matrix is

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S/021/61/000/004/006/013
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$$C^{(n)} = \left\| \begin{array}{cccccc} 1 & 0 & \dots & 0 & a^{(n)}_{1,n+1} & \dots & a^{(n)}_{1,n+k} \\ & 1 & \dots & 0 & a^{(n)}_{2,n+1} & \dots & a^{(n)}_{2,n+k} \\ & & \dots & & \dots & & \dots \\ & & & 1 & a^{(n)}_{n,n+1} & \dots & a^{(n)}_{n,n+k} \end{array} \right\| . \qquad (7)$$

When the original matrix A is symmetric ($a_{ij} = a_{ji}$) the columns n+1, n+2, ..., n+k of matrix (7) will be identical with those of (1) and hence these columns with reversed signs will be solutions of the original system of equations. This method makes it possible to solve a symmetric system of equations simultaneously with several columns of independent terms, ignoring those elements of the matrix which are below the principal diagonal. This effects without increasing the time of operation, an approximately $\sqrt{2}$ times improvement in the degree of solution of such a system without external help. Such a program was set up for solving a symmetrical system of equations by the "Strela" computer. The program consisted

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Solving by means of ...

of 200 basic and 25 auxiliary commands. Program 2. A further advance on the above method is possible. C is partitioned into $C_1 = //a_{ij}//(i \leqslant j;\ i = 1, 2, \ldots, \ell;\ j = 1, 2, \ldots, \ell, \ldots, n, \ldots n+k)$ and $C_2 = //a_{ij}//(i \leqslant j,\ i = \ell+1, \ell+2, \ldots, n;\ j = \ell+1, \ell+2, \ldots n+k)$. It follows easily that

$$x_l = -\left(\sum_{j=l+1}^{n} a_{lj}^{(l)} x_j + \sum_{j=n+1}^{n+k} a_{lj}^{(l)}\right) \quad (l = 1, 2, \ldots, l). \tag{8}$$

and

$$b_{ij} = a_{ij} - \sum_{r=1}^{l} a_{ri} a_{rj}^{(l)} \tag{9}$$

$$(i \leqslant j;\ i = l+1, l+2, \ldots, n;\ j = l+1, l+2, \ldots, n+k).$$

The method is to find the unknowns of the second group, and hence,

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from (8), the unknowns of the first group. The program is divided into three parts. The first part, as in program 1, evaluates from C_1 the coefficients by which the unknowns of the first group are expressed in terms of the second group. The second part (270 commands) sets out the expanded matrix of the system which included the unknowns of the first group by means of C_2 and (9). The third part (310 commands) evaluates the second group of unknowns, and hence, by (8), the first group. These programs were applied to problems of the stressed state in shells with holes, which may be reduced by the method of networks to systems of equations of the 54th and 79th orders.

ASSOCIATION: Instytut mekhaniky AN URSR (Institute of Mechanics AS UkrSSR)

SUBMITTED: July 9, 1960

Card 5/5

S/198/62/008/002/007/011
D299/D301

16.6800
24.4200

AUTHORS: Dluhach, M.Y., and Shynkar, A.I. (Kyyiv)

TITLE: Use of electronic computers for solving the biharmonic problem

PERIODICAL: Prykladna mekhanika, v. 8, no. 2, 1962, 160 - 172

TEXT: The method of group-elimination of unknowns from difference equations is proposed for the solution of the biharmonic problem on computers. Thereby, a program is set up which permits the solution of a system of equations of the order of several hundred unknowns. Such a system of equations is formed by the computer itself, on the basis of information regarding the relationships of the dimensions of the region under consideration, the mesh size, etc. By this program, the plane-stress problem of a doubly-connected region was solved on the computer "Strela" (of the Computation Center of the AS SSSR). The formulation of the problem involves, in addition to the ordinary boundary conditions, the conditions of uniqueness of the displacements. With a slight modification of the program, it could be also used for solving various problems for simply-connec-

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ted regions, including mixed problems. The biharmonic equation

$$\frac{\partial^4\varphi}{\partial x^4} + 2\frac{\partial^4\varphi}{\partial x^2\partial y^2} + \frac{\partial^4\varphi}{\partial y^4} = 0, \qquad (2.1)$$

where φ is the stress function, is approximated by the difference equations

$$20\varphi_{lk} - 8(\varphi_{l-1,k} + \varphi_{l+1,k} + \varphi_{l,k-1} + \varphi_{l,k+1}) + 2(\varphi_{l-1,k-1} + \varphi_{l-1,k+1} + \varphi_{l+1,k-1} + \varphi_{l+1,k+1}) + \varphi_{l-2,k} + \varphi_{l+2,k} + \varphi_{l,k-2} + \varphi_{l,k+2} = 0. \qquad (2.2)$$

A square mesh, of size h, is used. The system of difference equations is symmetrical with respect to the principal diagonal. A rectangular region with a rectangular hole is considered; the load, applied to the horizontal edges, is symmetrical with respect to the rectangular region. The system of equations is divided into separate cells; the matrix has 3-cell structure. By transforming the symmetrical matrices to diagonal form, it was possible to increase the order of the system of equations without having recourse to the external store. Thereby, a typical program was set up, whose order was by a factor of $\sqrt{2}$ (approximately) higher than that of the standard programs for solving a symmetrical system. This program

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had the additional merit that it can be used to solve a system of equations which have several columns of free terms, without requiring extra machine-time. This makes it possible to increase the order of the systems by group elimination of the unknown by means of the external store. The sequence in which the solution proceeds is set forth. The program consists of 2 parts: a) The formation of the matrix cells and their recording on tape; b) the solution of the system of equations by the method of group elimination. The block-diagram of the second part of the program is described. The problem for a rectangular region with a square hole, under the action of a uniform load, was solved according to the above program. The results are listed in a table, (for n = 168, and n = 72). A comparison with earlier results showed that the proposed method is sufficiently accurate. It could be further developed for systems of equations with 5-cell structure; thereby other types of problems (involving shells, for example) could be solved by means of computers. There are 5 figures, 12 tables and 4 Soviet-bloc references.

ASSOCIATION: Instytut mekhaniky AN URSR (Institute of Mechanics of the AS UkrRSR)

SUBMITTED: June 26, 1961

Card 3/3

S/879/62/000/000/009/088
D234/D308

AUTHORS: Dlugach, M. I. and Shinkar', A. I. (Kiev)

TITLE: The use of electronic computers in designing multiply-connected domains and shells with holes

SOURCE: Teoriya plastin i obolochek; trudy II Vsesoyuznoy konferentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo AN USSR, 1962, 101-105

TEXT: The authors describe a program for solving symmetrical systems of linear equations on a 'Strela' computer, making it possible to increase the order of the system by a factor of about $\sqrt{2}$. Feeding-in and storage of the parts of the matrix below the main diagonal is not required. Application of this method to a rectangular domain with a central hole and to a cylindrical shell with cyclically situated rectangular holes is described. Forms of the matrices for these two cases are given. There are 2 figures and 2 tables.

Card 1/1

TSYTSARIN, G.V.; SHINKAR, G.G.

Optical instrument for measuring silt density and possibilities for using it in hydrologic research. Vest.Mosk. un. Ser. 5: Geog. 17 no.1:67-68 Ja-F '62. (MIRA 16:7)
(Silt) (Optical instruments)

LOSEV, V.A.; SHINKAR', I.P.

Some indices of the respiratory function of the blood in animals of various ages. Vop. geron. i geriat. 4:62-66 '65. (MIRA 18:5)

1. Institut gerontologii AMN SSSR, Kiyev.

IL'INSKIY, G.A.; SHINKAREV, N.F.

Types of sodalite rocks in the Alay Range. Vop.magm.i metam. 2:216-221 '64. (MIRA 18:3)

SHINKARENKO, A.; VISHNEVSKIY, A.; KHARCHENKO, L., red.;
KOBYL'NICHENKO, A., tekhn. red.

[Mud therapy at Caucasian Mineral Waters] Griazelechenie na Kavkazskikh mineral'nykh vodakh. Stavropol', Knizhnoe izd-vo, 1963. 54 p. (MIRA 17:3)

[illegible], [illegible]

"The Effect of Ascaride Toxins in the Blood." Cand Biol Sci, [illegible] Medical Academy, Khar'kov 1953. Dissertation (Referativnyy Zhurnal--Khimiya, [illegible], No. [illegible], [illegible])

SO: SUM [illegible], 19 Aug 1954

SHINKARENKO, Aleksandr Ivanovich

[Around Asia; notes of a Soviet tourist]Vokrug Azii; zametki sovetskogo turista. Vladivostok, Primorskoe knizhnoe izd-vo, 1961. 45 p. (MIRA 15:10)

(Asia--Description and travel)
(Africa--Description and travel)

SHINKARENKO, A. K.

32785. VOLOSHCHENKO, D. L. i SHINKARENKO, A. K. Kvoprosu orake obdlechyek mizga. Trudy kievsk. Nauch.-issled. Pankhonevrol. In-ta, T. XII, 1949, s. 81-84, 212

SO: Letopis' Zhurnal'nykh Statey, Vol. 44, Moskva, 1949

SHINKARENKO, A.K.

Disorders in cortical and subcortical functions in meningoencephalitis [with summary in English] Fiziol.zhur. [Ukr.] 3 no.1:24-31 Ja-F '57. (MLRA 10:3)

1. Institut fiziologii im. O.O.Bogomol'tsya Akademii nauk URSR, viddil klinichnoi i eksperimental'noi nevrologii.
(MENINGOENCEPHALITIS) (CEREBRAL CORTEX)

DINABURG, A.D.; SHINKARENKO, A.K.

Pathogenesis of pyramidal disorders in tumors of the cerebellopontile angle [with summary in French] Zhur.nevr. i psikh. 57 no.4:488-495 '57. (MLRA 10:7)

1. Klinika blastomatozov (nauchnyy rukovoditel' - prof. B.N.Man'kovskiy) byvshego Kiyevskogo psikhonevrologicheskogo instituta.

(BRAIN NEOPLASMS, complications
cerebellopontile angle, with pyramidal disord. (Rus))
(PYRAMIDAL TRACT, diseases,
caused by cerebellopontile angle tumors (Rus))

SHINKARENKO, A.K.

Influenzal hemorrhagic meningo-encephalitis. Vop. klin. nevr. i pshik. no.2:143-160 '58. (MIRA 14:10)
(ENCEPHALITIS) (HEMORRHAGIC DISEASES)

SHINKARENKO, A.K. [Shynkarenko, O.K.]

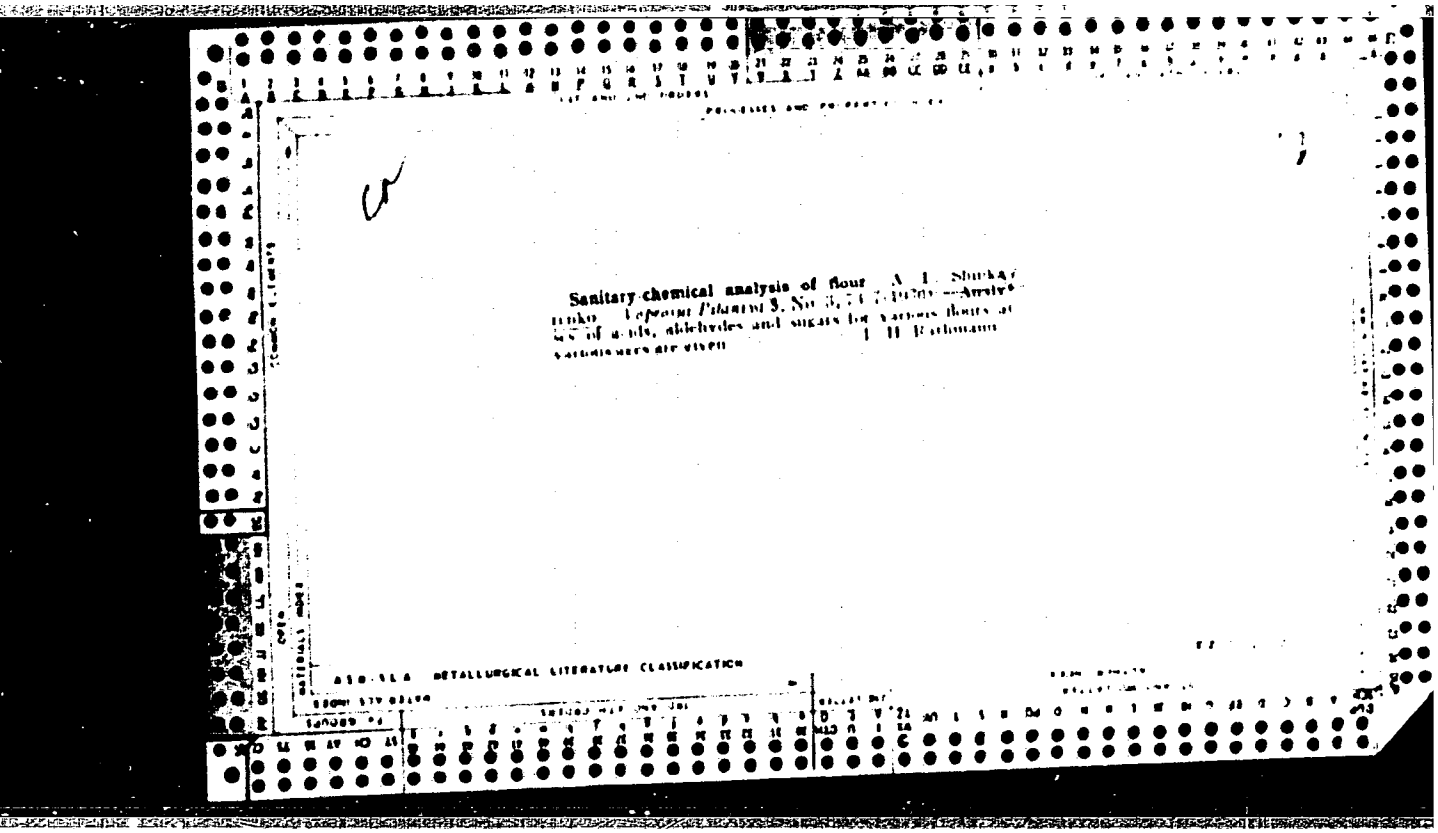
Hemorrhagic meningoencephalitis [with summary in English]. Fiziol. zhur. [Ukr.] 4 no.2:230-239 Mr-Ap '58. (MIRA 11:5)

1.Institut fiziologii im. O.O. Bogomol'tsya AN URSR, viddil klinichnoi ta eksperimental'noi nevrologii.
(ENCEPHALITIS)

DINABURG, A.D.; KLEYN, E.G.; SHINKARENKO, A.K.

Pathogenesis of influenzal diseases of the nervous system.
Zhur. nevr. i psikh 61 no.8:1129-1135 '61. (MIRA 15:3)

1. Otdel klinicheskoy i eksperimental'noy nevrologii Institute fiziologii imeni A.A. Bogomol'tsa (dir. - prof. A.F. Makarchenko) AN USSR i Kiyevskoye oblastnoye byuro sudebnoy ekspertizy.
(INFLUENZA)
(NERVOUS SYSTEM--DISEASES)



Sanitary chemical analysis of flour

METALLURGICAL LITERATURE CLASSIFICATION

SHINKARENKO, A. L.

Aug 1946

USSR/Medicine - Bactercides - Effect
Medicine - Mud

"Mechanism of the Bactericidal Effect of Tambukan Mud," O. Yu. Volkova, A. L. Shinkarenko, Microbiological and Physiochemical Laboratories, State Institute of Balneology at Caucasian Mineral Water Resorts, 6 pp

"Mikrobiologiya" Vol XV, No 4

Bactericidal effect of Tambukan mud is due to a complex of numerous and various active factors, which complex is considered one of the domineering factors of the bactericidal effect by the authors. Antagonistic action of the live mud microflora and the action of bacteriophage are not considered important in the determination of the bactericidal effect. Composition of salt solutions analogous to that of salt lake water or of mud water, as well as the microelements of the mud, possess insignificant bactericidal effect and cannot be regarded as chief active factors. A powerful effect greater than the effect of mud itself was produced by an organic complex extracted from the mud by acid alcohol.

PA40T35

SHINKARENKO, A.L.

The gas component and content of microelements in mineral springs of the Caucasian mineral waters. Trudy Lab. Gidrogeol. Problem 3, 253-63 '48. (MLRA 3:2)
(CA 47 no.18:9529 '53)

SHENKMAN, L.K.

28592

A. L. Tambukanskoye Ozyer I Ochyeryednyye Zadachi Vizuchyenii I Eksploatatsii Lyechyebnoy Gryazi Trudy Gos Nauch Issledyed Balbnyeol In-Ta Na Kavkazsk Minyeral Vodakh, T. XVIII, 1949. 353-72

SO: LETOPIS NO. 38

SHENKARYENKO

28591

A. L. O Gazovom Sostavye Mt Nyeralbnykh Istochnikov Rayona Knv. Trudy Gos. Nauch-Issiyed Balbnyeol In-Ta Na Kavkazsk Minyeral. Vodakh, T. XXVIII, 1949, S. 41-51 Bibliogr: 20 Nazv

SO: LETOPIS NO. 38

SHIKANYENKO, A. L.

-3573

Khimicheyeskaya Kharaktyeristika Sholcobrazuykh Baktyer Itsiunykh Vyeshchyestv Tambukanskoy Gryazi Trudy Gos Nauch Issiyed Baltnyeol In-Ta Na Kavkazsk Minyeral Vodakh, T. XXVIII, 1949 S. 73-8 Bibltogr 9 Nazv

SO: LETOPIS NO. 38

SHENKARENKO, A. L.

...c590

K Voprosu O Sodyerzhanii Uglyekisloty I Syerovodoroda V Vozdukhye Vannykh Zdaniy Pyatigorskogo Kurorta Trudy Gos. Nauch-Issledyed. Balbnyecl. In-Ta Kavkazsk Mineral. Vodakh, T.XXVIII,1949, S.107-20- Bibliogr: 6 Nazv Z Lyet Zh. in St. No. 38 6. Obshchaya Tyeradiya Fiziotyerapiya Kurortologiya

SO: LETOPIS NO. 38

SHINKARENKO, A.L.

Chemistry, Legal

"Forensic chemistry (chemical and toxicological analysis) and determination of industrial poisons." Prof. A. V. Stepanov. Reviewed by A.L. Shinkarenko. Apt. delo no. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

MIKHAYLOVA, G.S., kandidat farmatsevticheskikh nauk; MURAV'YEV, I.A., dotsent, zaveduyushchiy; SHINKARENKO, A.L., dotsent, direktor.

Preparation of aqueous extracts from raw materials containing tannic substances; data for the 9th Pharmacopoeia of the U.S.S.R. Apt.delo 2 no.3: 13-17 My-Je '53. (MLRA 6:6)

1. Kafedra tekhnologii lekarstvennykh form i galenovykh preparatov Pyatigorskogo farmatsevticheskogo instituta Ministerstva zdravookhraneniya SSSR (for Mikhaylova and Murav'yev). 2. Pyatigorskiy farmatsevticheskiy institut Ministerstva zdravookhraneniya SSSR (for Shinkarenko).
(Extracts) (Tannins)

SHINKARENKO, A.L.; MAMAYCHUK, M.I.; SUNTSOVA, L.D.

Antagonistic effect of substances from the green-blue algae.
Zhur. mikrobiol. epid. i immun. 31 no. 5:116 My '60.
(MIRA 13:10)

1. Iz Pyatigorskogo farmatsevticheskogo instituta.
(ALGAE) (BACTERICIDES)

BANDYUKOVA, V.A.; SHINKARENKO, A.L. [Shynkarenko, A.L.]

Results of studying high-mountain plants of Teberda Preserve on the content of flavonoid substances by the paper chromatography method. Farmatsev.zhur. 20 no.6:37-41 '65. (MIRA 19:1)

1. Pyatigorskiy farmatsevticheskiy institut, kafedra organicheskoy i biologicheskoy khimii. Submitted April 19, 1965.

SHINKARENKO, B.M.

Sowing monospermous beets. Sakh.prom. 31 no.3:52-53 Mr '57.
(MLRA 10:4)

1. Pivnenkovskiy sakhkombinat.
(Sugar beets)

SHINKARENKO, F., general-leytenant aviatsii, Geroy Sovetskogo Soyuza, voyennyy letchik pervogo klassa;
SUKHORUKOV, Ye., polkovnik

On the glide path. Av. i kosm. 45 no.11:32-39 '62. (MIRA 15:11)

(Airplanes--Landing)

SHINKARENKO, G., general-mayor

Realization of resolutions of report and election party meetings.
Komm. Vooruzh. Sil 3 no.1:28-33 Ja '63. (MIRA 16:1)
(Russia--Armed forces--Political activity)

SHINKARENKO, G.Ye., inzhener.

Logging road with a reinforced concrete surface. Les.prom. 35 no.4:16-17 Ap '57. (MLRA 10:5)
(Forest roads)

SHINKARENKO, I.; TUL'CHINSKIY, P.; FAYVUSOVICH, A.;

Mesh-reinforced concrete roofs for industrial buildings. Prom. stroi. i inzh. soor. 5 no.3:14-18 My-Je '63. (MIRA 16:7)

1. Glavnyy inzh. tresta "Luganskpromstroy" (for Shinkarenko). 2. Glavnyye konstruktory Luganskogo filiala Nauchno-issledovatel'skogo instituta po stroitel'stvu v yuzhnykh rayonakh SSSR.

(Roofing, Concrete)

SHINKARENKO, I. B.

"The Mycorrhiza of Pine as a Factor in the Acclimatization of Forestry Crops on Sand." Cand Agr Sci, Khar'kov Order of Labor Red Banner Agricultural Inst imeni V. V. Dokychayev Chair of Silviculture and Dendrology, Min Higher Education USSR, Khar'kov, 1955. (KL, No 7, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations, Defended at USSR Higher Educational Institutions. (14)

USSR/Forestry. Forest Biology and Typology. J-2

Abs Jour: Referat Zh-Biol., No 6, 1957, 22547

Author : Shinkarenko, I.B.
Inst : 0
Title : Dynamics of Growth and Development of Horizontal Roots of Common Pine.

Orig Pub: Zap. Kharkovsk. s.-kh. in-ta, 1955, 10 (47), 229-239

Abstract: The growth of roots of common pine occurs periodically. The roots have two periods of accelerated growth - in spring and fall. In most cases almost the total mass of horizontal roots emerges during the period of spring maximum growth. The growth location is the spring-summer growth increase of the roots of the previous year. They appear in the beginning of May and reach full development by the beginning of June. The higher the order of root branchings, the lower the vitality of their meristem. In rest periods, in spots of root growth internal changes

Card : 1/2

occur, related to increased formation of meristematic embryo. Therefore, in July-August the growth points plugged up by diaphragms develop into characteristic balls. In the fall and spring these meristematic cells pass through a phase of stretching and differentiation. The possibility of root infection by mycorhiza-forming fungi in the first place depends on the speed of root growth. The slower the root growth, the smaller are its cells and the thinner their envelopes, and the easier it is for the fungi to penetrate inside the bark cells. The positive role of mycorhiza is produced by increasing the duration of primary existence of pine root bark, and therefore in prolonging the span of root function as an absorptive organ.

SARYCHEV, A.N.; SHINKARENKO, I.I.; GRIGOR'YEV, S.A.; KARIMOV, M.S., starshiy nauchnyy sotrudnik

Using cement for the stabilization of the roadbed. Put' i put. khoz. 7 no.6:19-20 '63. (MIRA 16:7)

1. Nachal'nik Nikolayevskoy distantsii puti Odessko-Kishinevskoy dorogi (for Sarychev). 2. Nachal'nik proyektnoy gruppy sluzhby puti, Nikolayevskaya distantsiya Odessko-Kishinevskoy dorogi (for Shinkarenko). 3. Rukovoditel' brigady proyektnoy gruppy sluzhby puti, Nikolayevskaya distantsiya Odessko-Kishinevskoy dorogi (for Grigor'yev). 4. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta (for Karimov).
(Railroads—Track) (Soil stabilization)

SHINKARENKO, I.N.

Combined treatment of Dupuytren's contracture with use of hyaluronidase preparations. Ortop.,travm. i protez. 20 no.5:23-28 My '59. (MIRA 12:9)

1. Iz TSentral'nogo instituta travmatologii i ortopedii (dir. - deystvitel'nyy chlen AMN SSSR prof.N.N.Priorov).
(DUPUYTREN'S CONTRACTURE, ther.
hyaluronidase in combined ther. (Rus))
(HYALURONIDASE, ther. use
Dupuytren's contracture, in combined ther. (Rus))

SHINKARENKO, I. N., Cand. Medic. Sci. (diss) "Contracture with Diophiotrene of Cysts and Their Treatment with Use of Invasin Preparations," Moscow, 1961, 14 pp. (Central Inst. Improvem. Trng. of Doctors) 250 copies (KL Supp 12-61, 290).

SHIRKALENKO, I. P., and SLESAREV, V. I.

Contrast Contour Roentgenography and Contour Roentgenoscopy of the Soft Facial Tissuses. Voyenno-Meditsinskiy Zhurnal, No 1, p. 70, 195[illegible].

Shinkarenko, I. P.

Rapid determination of alcohol vapor in expired air. L. A. Mokhov and I. P. Shinkarenko. *Sovet. Med.* 19, No. 11, 67–70(1955).—To detect EtOH in expired breath, fill 10-cm. glass tubes of 2–3 mm. inside diam. with a homogeneous mixt. of 4.7 g. anhyd. silica gel and 2 cc. of a soln. of 0.6 g. CrO_3 in concd. H_2SO_4, held in place by glass wool. Blow through the tube energetically for 20–25 sec. A pos. reaction is shown by a change from orange Cr^{6+} to green Cr^{3+} and is caused by EtOH, Et_2O, Me_2CO, aldehydes, MeOH, and large quantities of H_2S; no reaction is caused by $CHCl_3$, CCl_4, $CHCl_2CH_3$, PhOH, or AcOH.
Cyrus C. Sturgis, Jr.

CH (1)

MOKHOV, L.A. (Moskva); UDALOV, Yu.F. (Moskva); SHINKARENKO, I.P. (Moskva)

Ointment for protecting the human skin from ultraviolet rays.
Vest.derm. i ven. 31 no.1:48-49 Ja-F '57. (MLRA 10:7)
(ULTRAVIOLET RAYS--PHYSIOLOGICAL EFFECT)
(BENZOIC ACID) (OINTMENTS)

SHINKARENKO, I.F., Moskva

Influence of alcoholic intoxication in motor vehicle drivers on the results of traffic violations. Sud.-med.ekspert. 2 no.3:21-25 Jl-S '59. (MIRA 13:4)

(TRAFFIC VIOLATIONS) (ALCOHOLISM)